REMARKS/ARGUMENTS

Claims 1, 3-4, 7 and 9 are active in this application, claims 2, 5-6 and 8 having been cancelled and new claim 9 having been added. Claim 1 has been amended to specify that the alkyl-styrene derived structural unit (I) is present in polymer block (A) in an amount of at least 30% by mass. This amendment is supported by the specification at page 9, lines 12-13. New claim 9 specifies that the alkylstyrene-derived structural unit (I) is present in polymer block (A) in an amount of at least 50% by mass. This claim is supported by the specification at page 9, lines 13-14. No new matter has been added by these amendments.

The present invention relates to a polymer composition containing an addition polymerization-based block copolymer (a), an acrylic resin (b), and a softener (c), wherein the addition polymerization-based block copolymer (a) has a weight average molecular weight of 30000 to 200000 and is at least one selected from block copolymers comprising at least one polymer block A and at least one polymer block B, and hydrogenated products of the block copolymers; the polymer block A comprises mainly an aromatic vinyl compound unit containing at least 30% by mass of an alkylstyrene-derived structural unit (I) in which at least one alkyl group having 1 to 8 carbon atoms is bound directly to a benzene ring; the polymer block B comprises a conjugated diene compound unit; and the components of the polymer composition are present in respective proportions (by mass) so that the following relationships (1) and (2) hold:

$$0.05 \leq Wb/Wa \leq 2 \qquad (1)$$

$$0 \leq Wc/(Wa+Wb+Wc) \leq 0.5 \qquad (2)$$

where Wa, Wb, and Wc are the amounts (by mass) of the components of the polymer composition: the addition polymerization-based block copolymer (a), the acrylic resin (b) and the softener (c), respectively, wherein the polymer composition has a sea-island morphology;

wherein the acrylic resin (b) is a homopolymer of methyl methacrylate or a copolymer of methyl methacrylate and one or more copolymerizable monomers selected from the group consisting of acrylic acid, metal salts of acrylic acid, acrylic acid esters, methacrylic acid, metal salts of methacrylic acid, methacrylic acid esters, vinyl acetate, aromatic vinyl compounds and maleimide compounds; and wherein the polymer composition, when formed into a 2mm thick sheet-shaped article and tested for the Taber abrasion according to JIS K 6264, gives a Taber abrasion of 100mm^3 or less, the test conducted by abrading the sheet with an H-22 abrasion disk at 1000rpm while applying a 1kg load. Applicants have found that by requiring their polymer compositions to meet the requirements of the present claims, namely with respect to the use of an alkylstyrene derived structural unit where the alkyl group is directly bound to the benzene ring, the ratio of amount of a block copolymer (a), the amount of an acrylic resin (b), and the amount of softener (c), and by requiring that the composition have a sea-island morphology, the resulting compositions have significantly improved scratch resistance and abrasion resistance.

In the present invention, regardless of the presence or absence of any fillers, when the block copolymer in the polymer composition has the structural unit (I), and the block copolymer, acrylic resin and softener are present in the defined amounts, the polymer composition forms a specific phase structure (morphology) which, of itself, provides the polymer composition with improved scratch resistance and abrasion resistance.

The claims stand rejected under 35 U.S.C. 103 over Toshinori, optionally in view of Dekking. Toshinori discloses a resin composition containing a block copolymer and a thermoplastic resin, preferably combined in a proportion of 5:95 to 95:5. Further, Toshinori's composition can contain a softener, preferably in an amount of 40 to 80 parts by weight per 100 parts by weight of the total amount of block copolymer and thermoplastic resin (see pages 22-23 of the English translation of Toshinori). However, for the Examiner to suggest

that one of ordinary skill would somehow be led by the teachings of Toshinori to choose to combine an addition polymerization based block copolymer with an acrylic resin and a softener; **and** to somehow choose the block copolymer to have the necessary block A comprising mainly an aromatic vinyl compound unit containing at least 30% by mass of an alkylstyrene-derived structural unit having at least one alkyl group having 1-8 carbon atoms bound directly to the benzene ring, **and** to choose the acrylic resin to be a homopolymer of methyl methacrylate or a copolymer of methyl methacrylate and one or more copolymerizable monomers selected from the group consisting of acrylic acid, metal salts of acrylic acid, acrylic acid esters, methacrylic acid, metal salts of methacrylic acid, methacrylic acid esters, vinyl acetate, aromatic vinyl compounds and maleimide compounds; as required in the present invention; **and** to choose the relative amounts of these components and the softener to meet the relationships (1) and (2) of the present claims; is stretching the teachings of Toshinori beyond recognition.

Toshinori's listing of possible thermoplastic resins covers over 3 pages of text, and a vast array of polymers. Further, **none** of the preferred thermoplastic resins taught at page 22 of the English translation are acrylic based resins, nor are any of the working examples. There is only a passing mention of an acrylic resin such as polymethyl methacrylate at pages 19-20 of the English translation.

Further, even if one of ordinary skill were to somehow arrive at this combination of the three components, Toshinori says NOTHING about improving transparency, scratch resistance and abrasion resistance. Accordingly, one of ordinary skill in the art could have no way of expecting that choosing any combination of components from Toshinori would have any effect on those properties at all!

The Examiner has attempted to overcome these deficiencies of Toshinori by the use of Dekking. Dekking teaches that it is known in the plastic art to use inexpensive particulate

fillers to extend polymers and reduce material costs, and that certain of these fillers provide reinforcing, better abrasion resistance and increased hardness. However, that is not the present invention.

The present invention uses a particular combination of a block copolymer, an acrylic resin and a softener to achieve a specific phase structure/morphology and result in improved abrasion and scratch resistance, and improved transparency. Further, the present invention also requires that the ratios of the components meet certain limitations, and that the block copolymer have at least 30% by mass of an alkylstyrene-derived structural unit (I) in polymer block (A). These specific requirements are nowhere found in either of the two references, and one of ordinary skill would not arrive at such a combination of required elements based on the references teachings. Dekking's only teaching is to improve abrasion resistance by adding an inorganic particulate filler. That is completely different from the present invention. If the Examiner is basing this combination rejection on Dekking teaching that it is desirable to improve abrasion resistance in polymer compositions, this still does not provide any guidance to one of ordinary skill in the art on HOW to modify Toshinori, or WHICH components to pick from Toshinori, or WHAT would be the properties of the resulting composition if they did so! The only way taught by Dekking to improve abrasion resistance is to add an inorganic particulate filler to the composition. That is NOT the present invention and cannot result in making the present invention obvious.

Even if the Examiner maintains his position regarding the references, the specification provides Examples 1-8, in which there is used a block copolymer containing polymer block A containing the structural unit (I) as required in the present invention. Comparison Examples 5-7 do not contain such an alkylstyrene derived structural unit, but merely contain styrene in polymer block A instead. As shown in the specification, Examples 1-8 provide significantly improved abrasion-resistance or taber-abrasion resistance compared to

Comparison Examples 5-7. In particular, it is noted that the compositions of Examples 1, 2, 5 and 8 are the same as the compositions of Comparative Examples 5, 7, 6, and 5, respectively, with the difference being that Comparative Examples 7, 6 and 5 contain NO alkylstyrene-derived structural unit (I), and only contain styrene units in polymer block (A) (it is noted that Example 1 and Example 8 differ from one another in that Example 1 uses block copolymer 1, which has polymer block (A) containing only the alkylstyrene-derived structural unit (I), while Example 8 uses block copolymer 2, which has polymer block (A) containing 50/50 styrene/alkylstyrene-derived structural unit (I)). As shown, the present invention Examples provide significantly improved abrasion resistance and significantly improved scratch resistance compared to the Compartive Examples. Such improvements CANNOT be suggested by the combination of references, based upon merely changing the monomers used to form the block copolymer. As such, the results in the specification are sufficient to rebut any asserted case of obviousness based upon the references cited. The fact that the Dekking reference teaches the use of fillers to improve abrasion resistance and hardness still does not suggest that one can achieve significant improvements in abrasion resistance and scratch resistance by the use of a block copolymer as required in the present invention. Accordingly, the rejection cannot stand and should be withdrawn.

Applicants submit that the application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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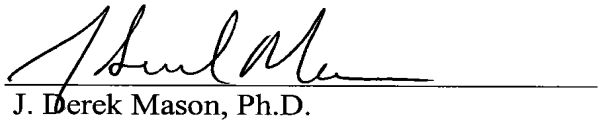

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